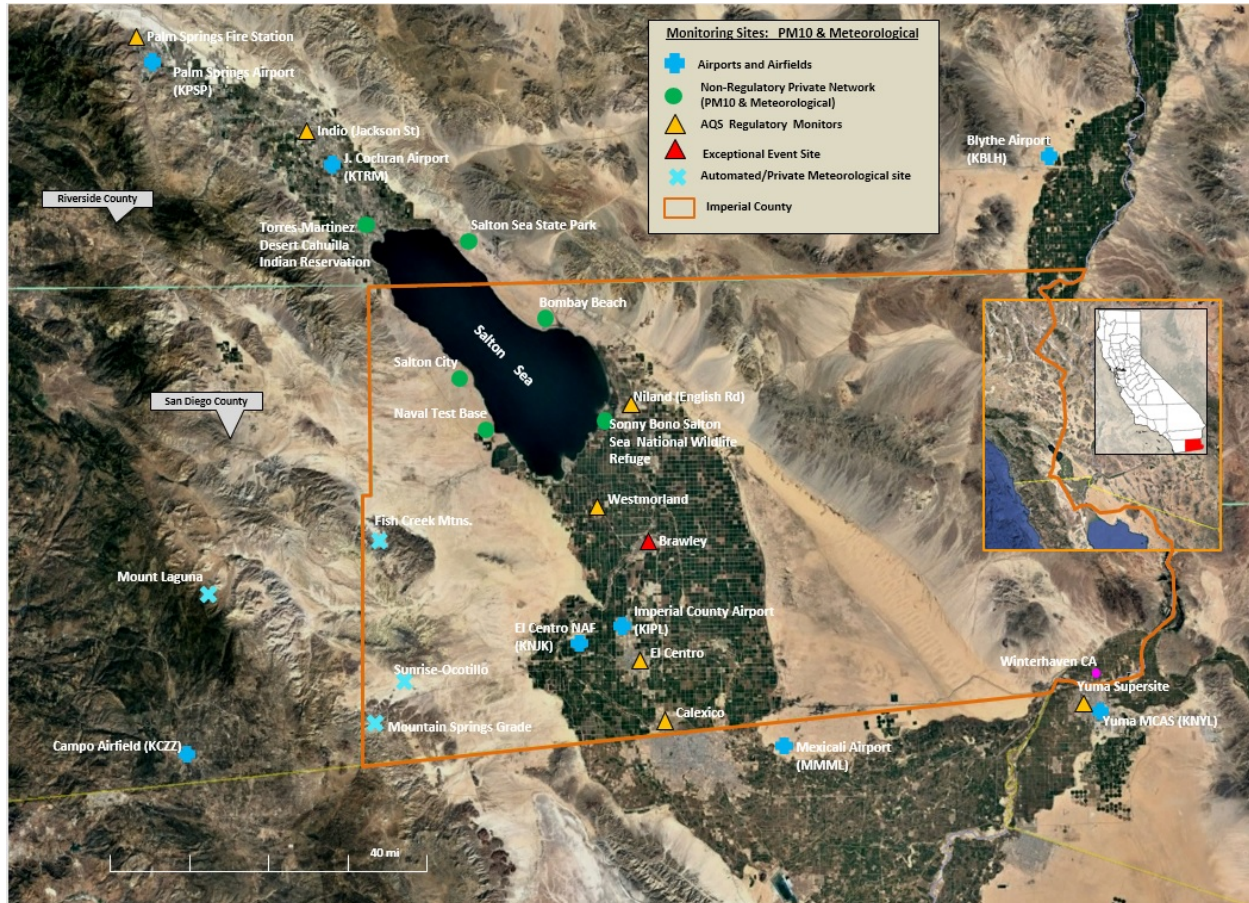


## Appendix B

### Meteorological Data

This section contains meteorological data derived from various regulatory and non-regulatory sites. The data provides a comparative analysis of winds speed, wind direction, wind gusts and concentration data. Please note that meteorological instruments measure at different heights, and at different time intervals. By taking, the actual time of measurement and assuring that all data represented is in Pacific Standard Time (PST) there is uniformity of the data. In addition, not all stations measure at the exact same time, i.e. measurements at 053 and 056 therefore, comparisons are measurements within a 60-minute period. While there may be some overlapping and slight differences the comparative analysis provides the reader with a better understanding of the regional effect of the Exceptional Event.

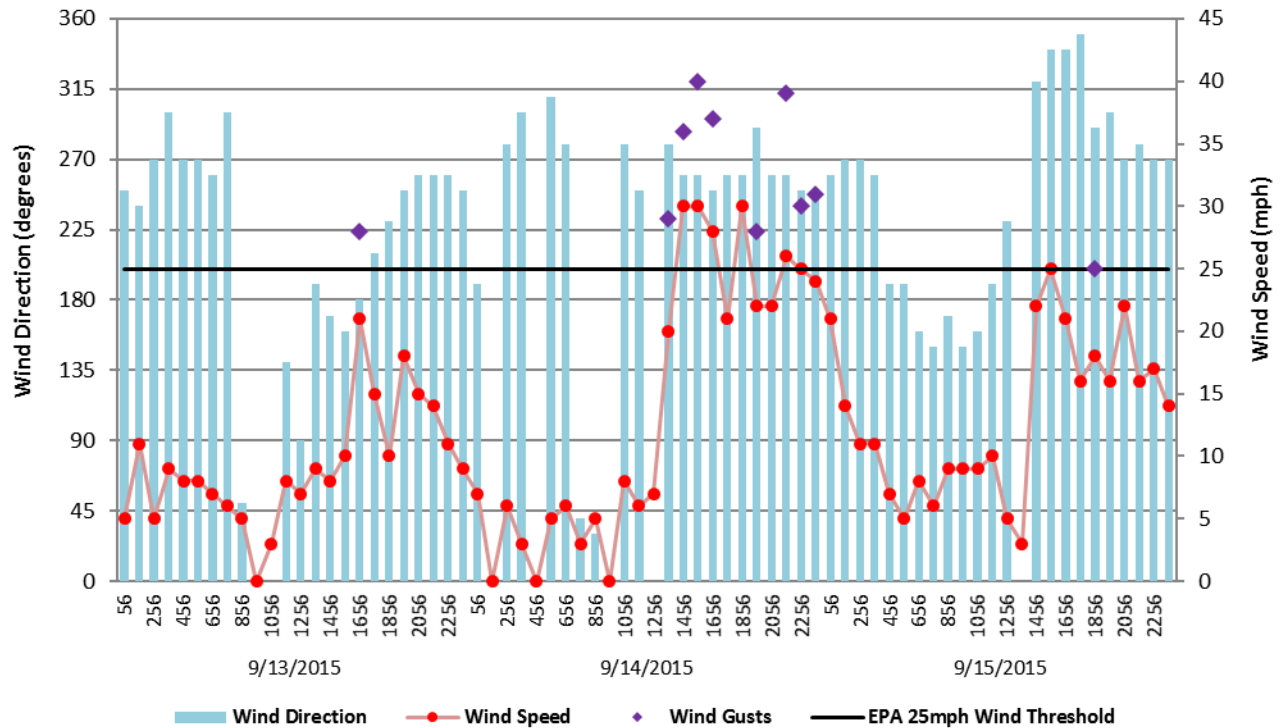
**FIGURE B-1**  
**METEOROLOGICAL SITES IN SOUTHEASTERN CALIFORNIA AND YUMA, ARIZONA**



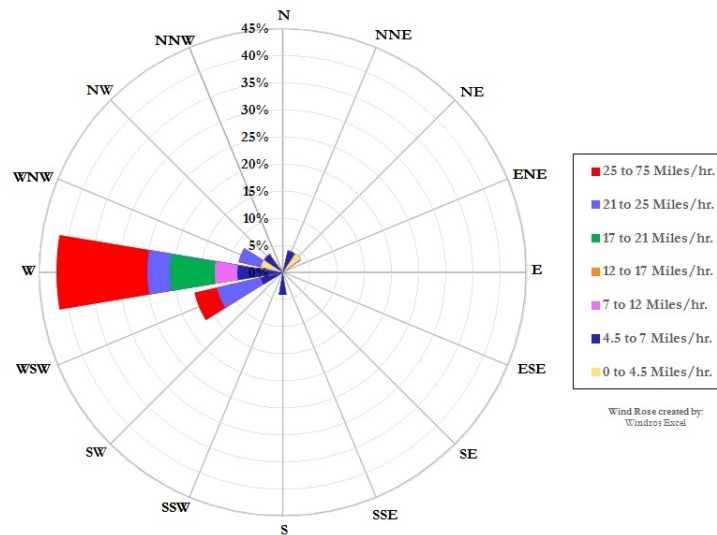
**Fig B-1:** This image shows the meteorological sites and the air quality monitoring sites used in this document. Google Earth base map. Inset locator map of California from Wikipedia

## IMPERIAL COUNTY SITES

**FIGURE B-3**  
**EL CENTRO NAF (KNJK)**  
**WIND SPEED (AVERAGES) & GUSTS AND DIRECTION**

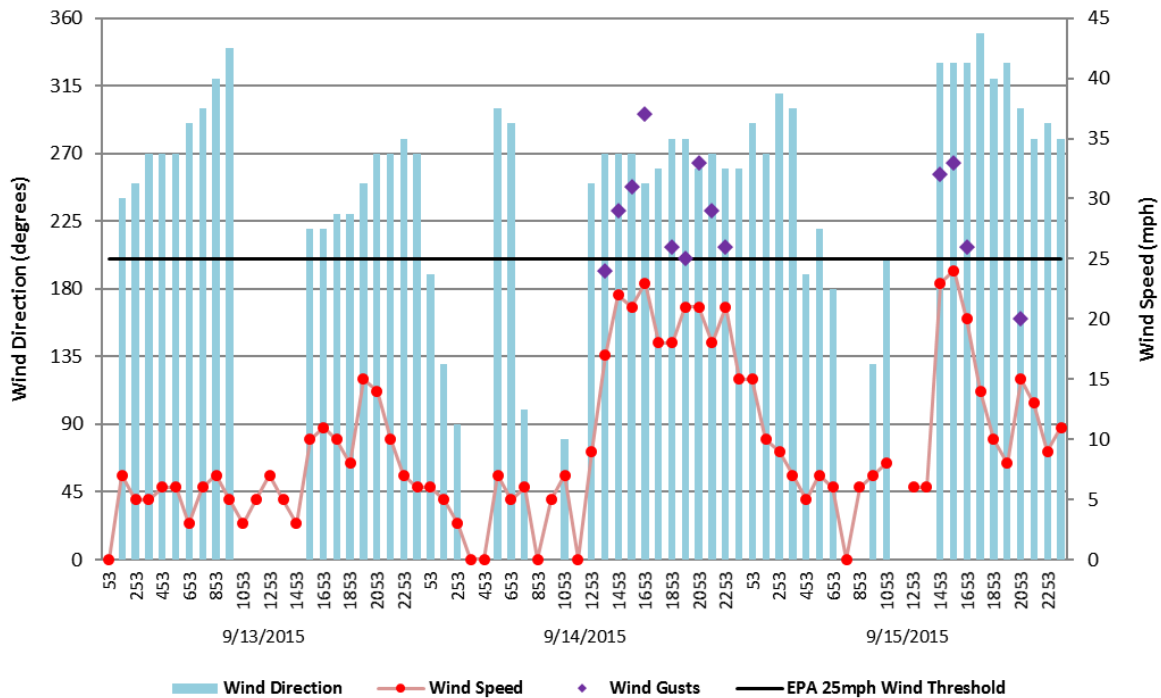


**FIGURE B-3**  
**EL CENTRO NAF WIND ROSE – SEPTEMBER 14**

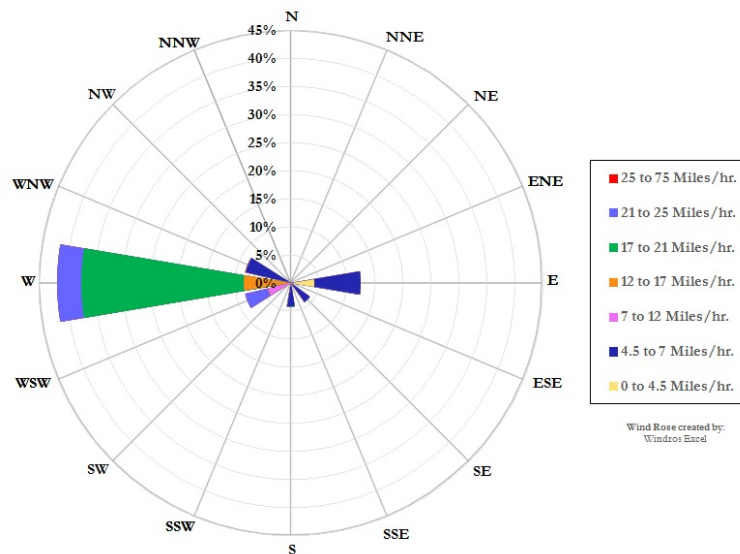


**Figs B-2 & B-3:** KNJK had winds and gusts above the 25 mph threshold. The wind rose shows winds were predominantly westerly. Data from the NCEI's QCLCD system

**FIGURE B-4**  
**IMPERIAL COUNTY AIRPORT (KIPL)**  
**WIND SPEED (AVERAGES) & GUSTS AND DIRECTION**

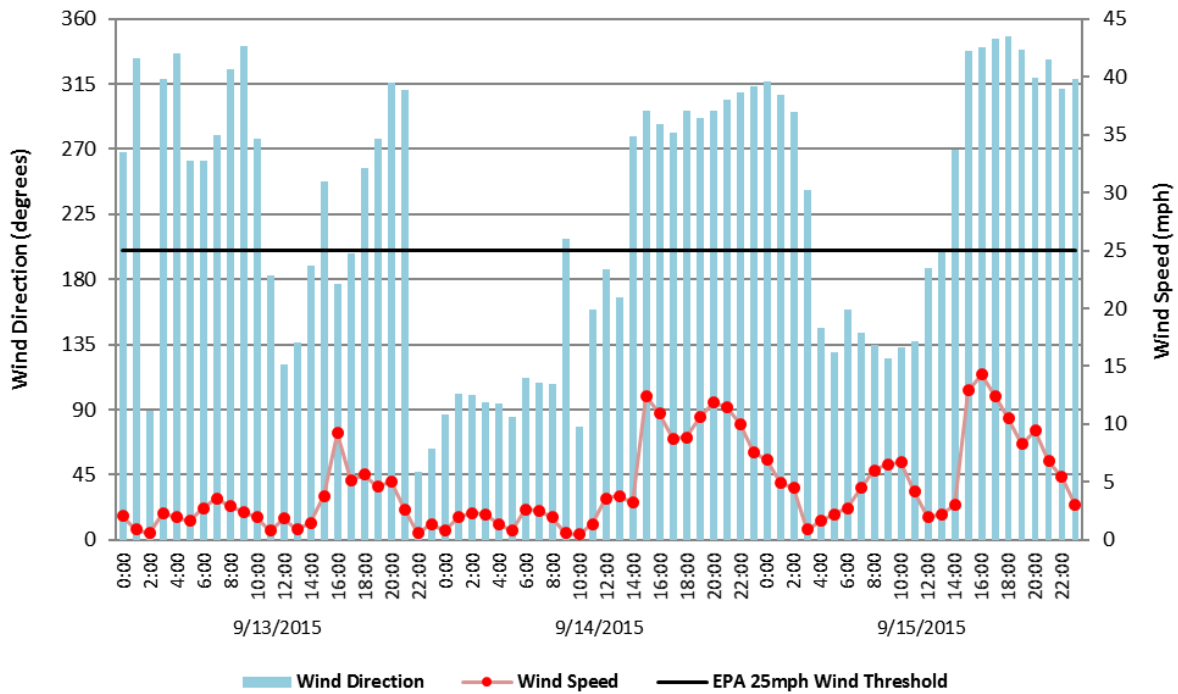


**FIGURE B-5**  
**IMPERIAL COUNTY AIRPORT (KIPL) WIND ROSE – SEPTEMBER 14**

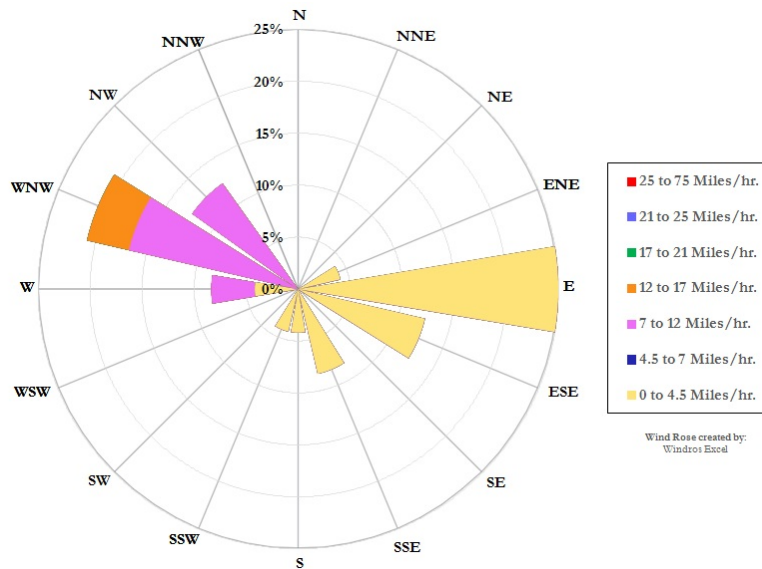


**Figs B-4 & B-5:** Imperial County Airport had winds just under 25 mph, but gusts exceeded 25mph by a wide margin. Data from the NCEI's QCLCD system

**FIGURE B-6**  
**CALEXICO WIND SPEED & AND DIRECTION**



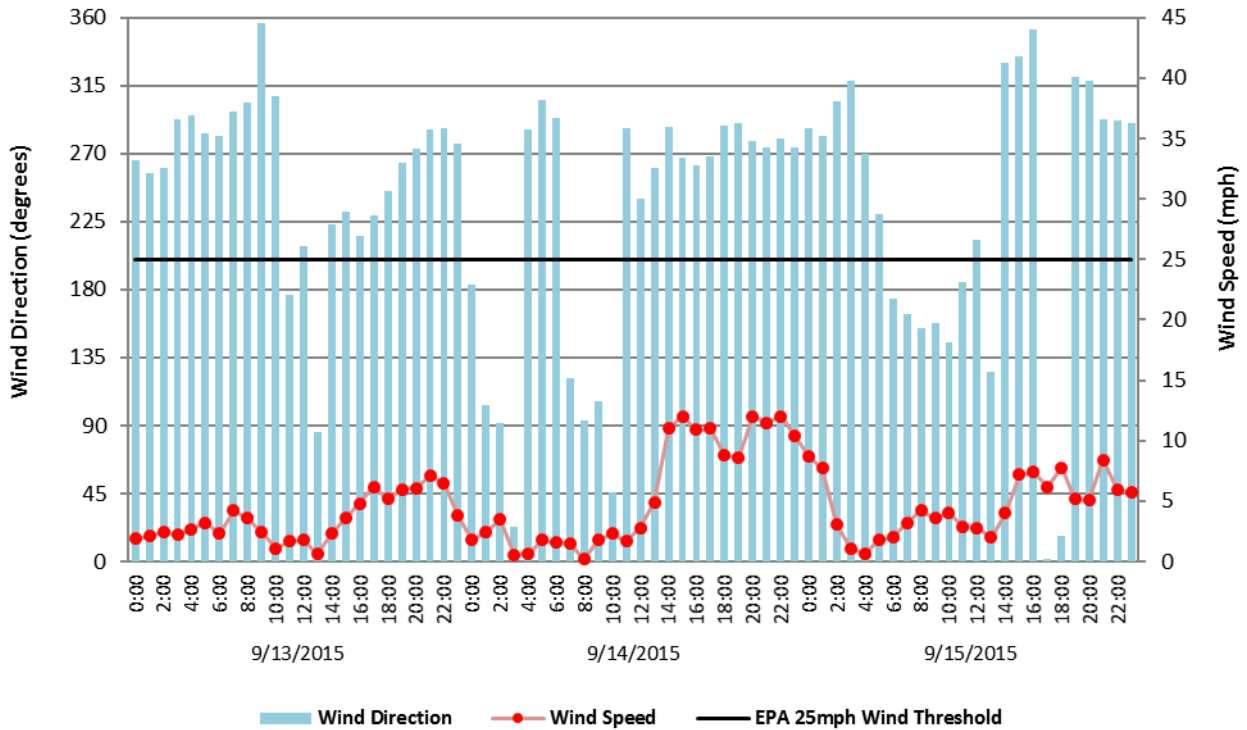
**FIGURE B-7**  
**CALEXICO WIND ROSE – SEPTEMBER 14**



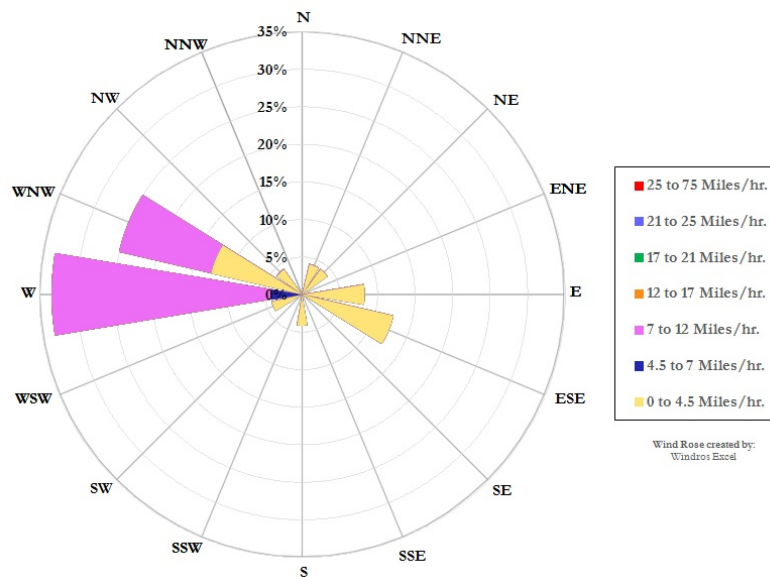
**Figs B-6 & B-7:** Winds at Calexico did not exceed 25 mph during September 14, 2015. Wind data from the EPA's AQS data bank



**FIGURE B-8**  
**EL CENTRO WIND SPEED & AND DIRECTION**

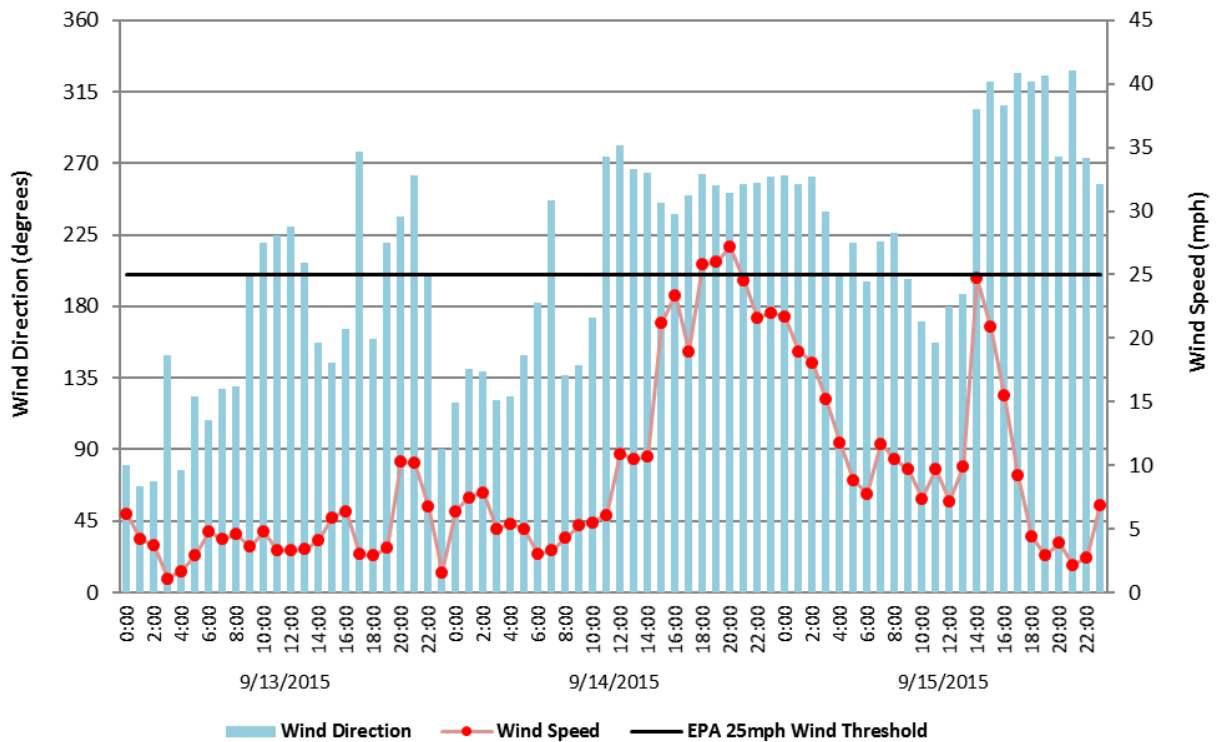


**FIGURE B-9**  
**EL CENTRO WIND ROSE – SEPTEMBER 14**

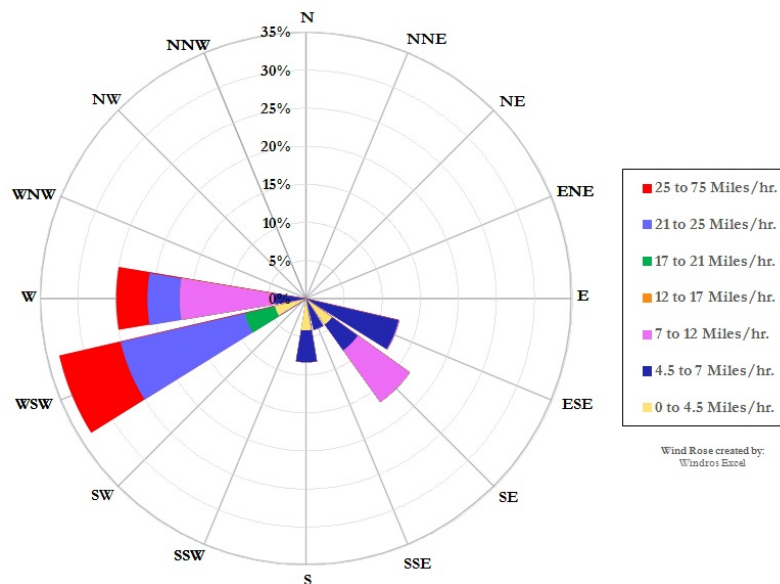


**Figs B-8 & B-9:** Winds at El Centro did not exceed 25 mph during September 14, 2015. Wind data from the EPA's AQS data bank.

**FIGURE B-10**  
**NILAND WIND SPEED & AND DIRECTION**



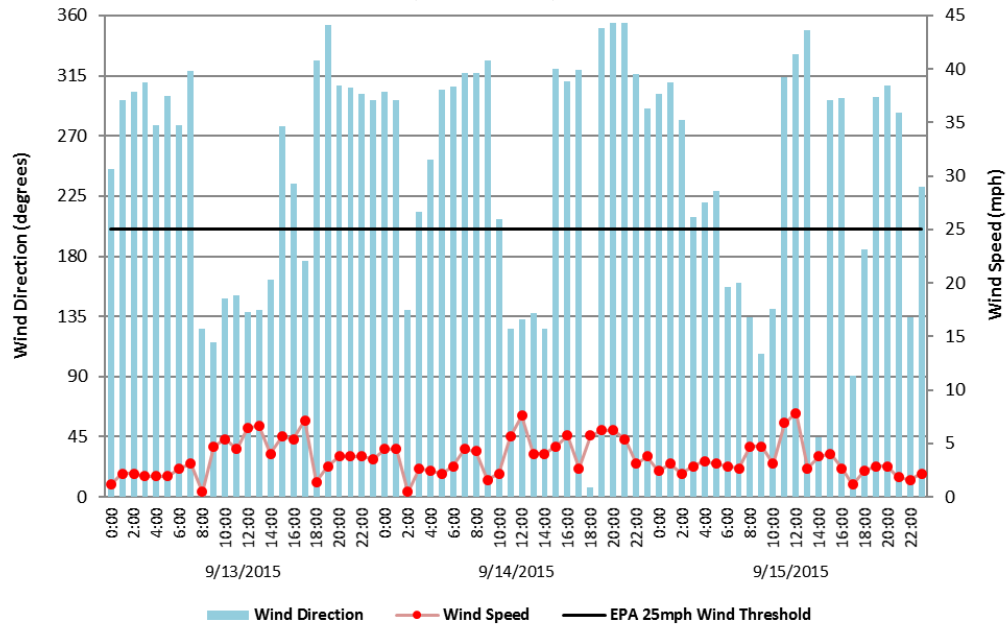
**FIGURE B-11**  
**NILAND WIND ROSE – SEPTEMBER 14**



**Figs B-10 & B-11:** Winds at Niland (English Rd) reached or exceeded 25 mph for multiple hours. Wind data from the EPA's AQS data bank

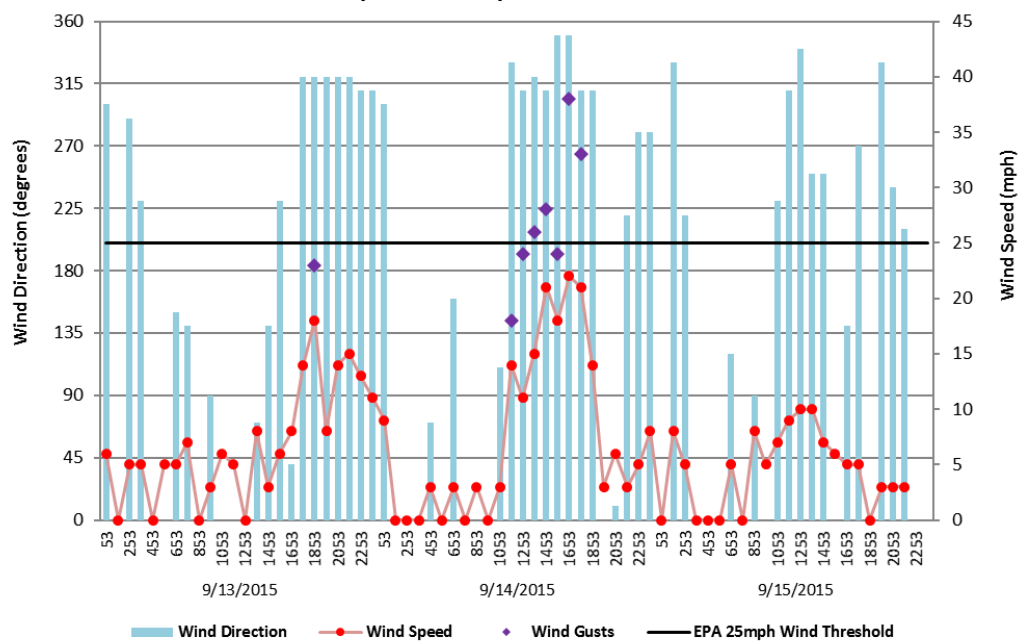
## EASTERN RIVERSIDE COUNTY SITES

**FIGURE B-12**  
**TORRES-MARTINEZ DESERT CAHUILLA INDIAN RESERVATION**  
**WIND SPEED (AVERAGES) AND DIRECTION**



**Fig B-12:** Wind data from the EPA's AQS data bank

**FIGURE B-13**  
**PALM SPRINGS INTERNATIONAL AIRPORT (KPSP)**  
**WIND SPEED (AVERAGES) & GUSTS AND DIRECTION**



**Fig B-13:** Wind data from the NCEI's QCLCD system

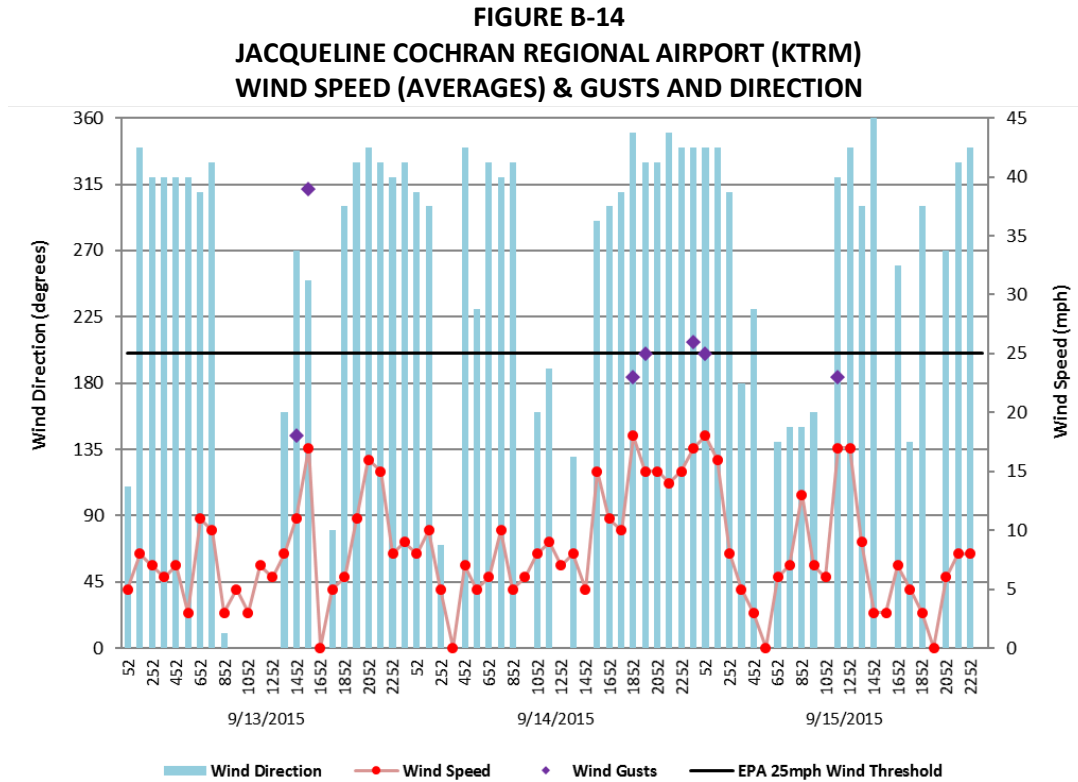


Fig B-14: Wind data from the NCEI's QCLCD system

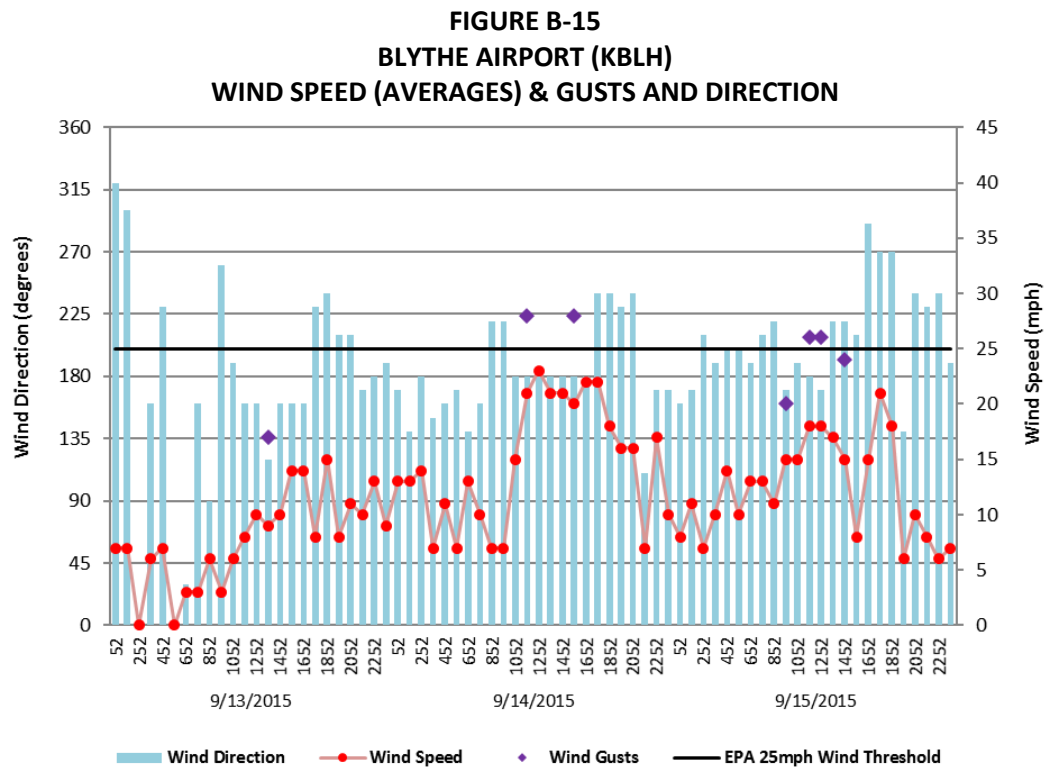
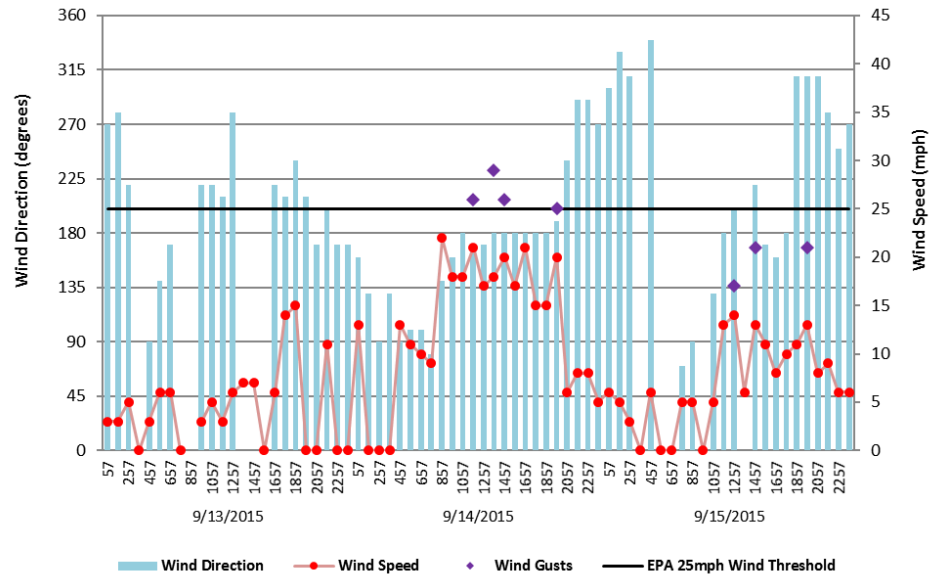


Fig B-15: Wind data from the NCEI's QCLCD system



## SOUTHWESTERN ARIZONA

**FIGURE B-16**  
**YUMA, ARIZONA MCAS (KNYL)**  
**WIND SPEED (AVERAGES) & GUSTS AND DIRECTION**



**Fig B-16:** Wind data from the NCEI's QCLCD system

## MEXICO

FIGURE B-17  
MEXICALI, MEXICO INTERNATIONAL AIRPORT (MMML)  
WIND SPEED (AVERAGES) AND DIRECTION

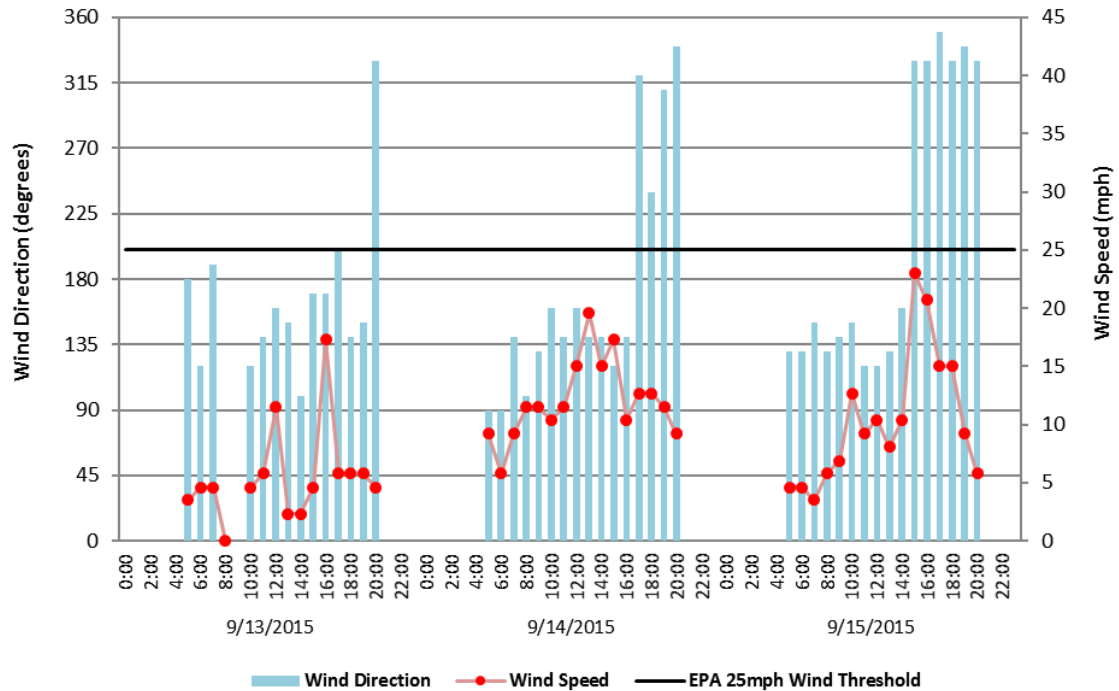
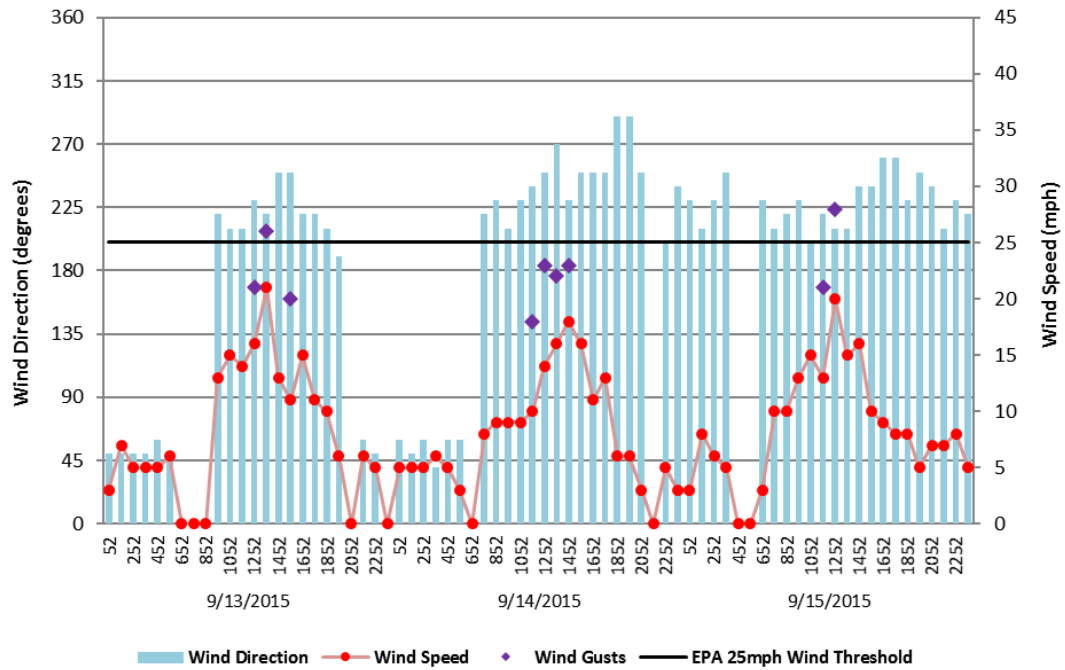


Fig B-17: Wind data from the University of Utah's MesoWest system

## SOUTHEASTERN SAN DIEGO COUNTY

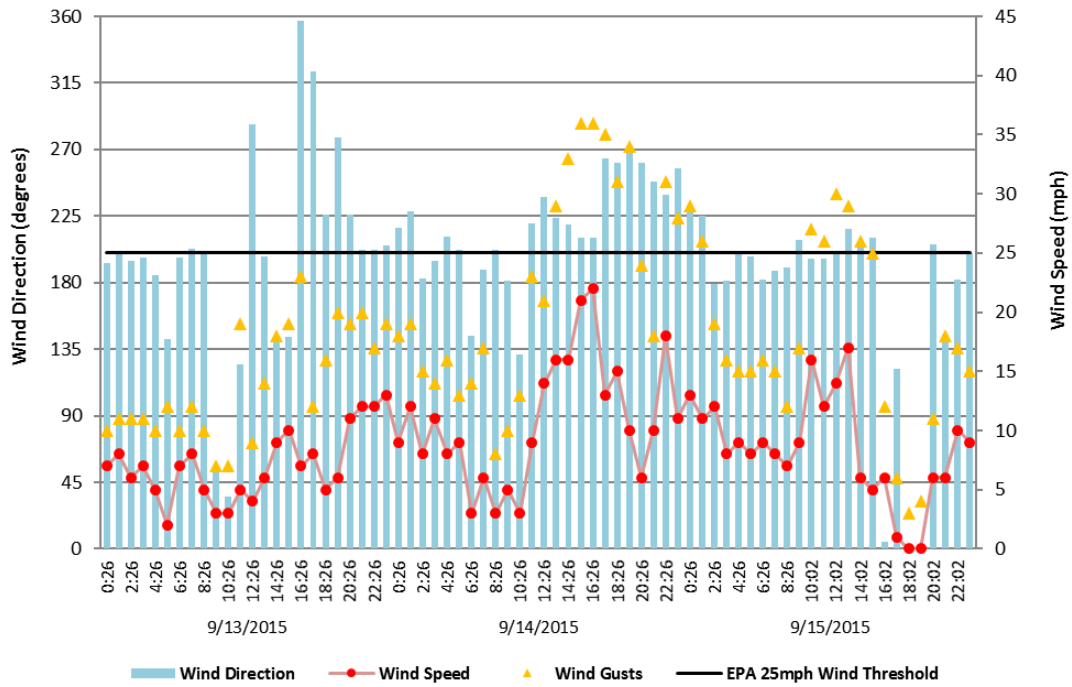
**FIGURE B-18**  
**CAMPO AIRPORT (KCZZ)**  
**WIND SPEED (AVERAGES) & GUSTS AND DIRECTION**



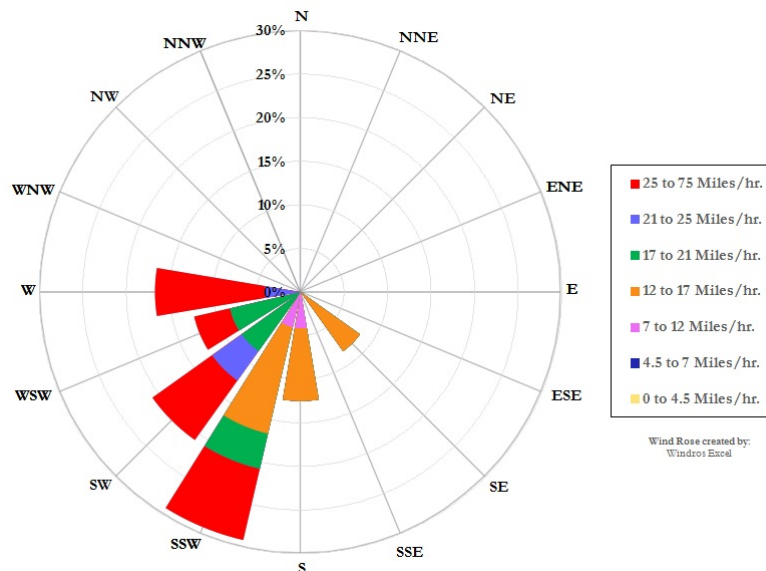
**Fig B-18:** Wind data from the NCEI's QCLCD system

## UPSTREAM SITES

**FIGURE B-19**  
**FISH CREEK MOUNTAINS**  
**WIND SPEED (AVERAGES) & GUSTS AND DIRECTION**

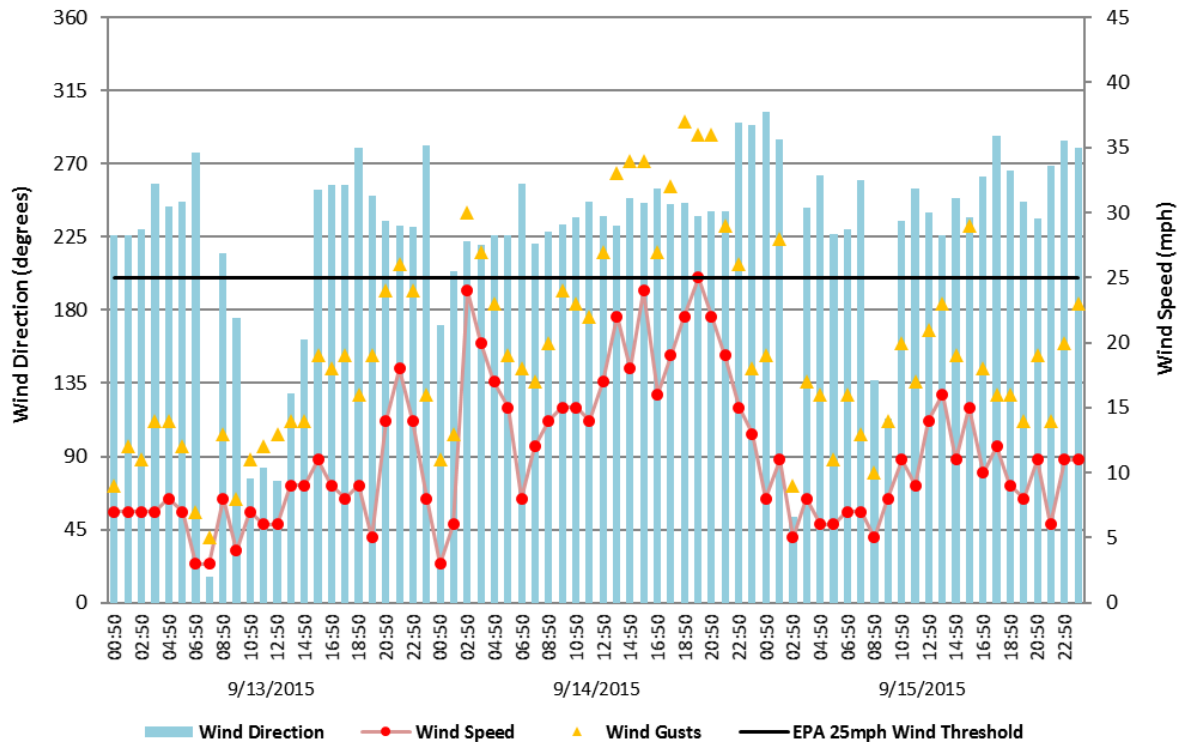


**FIGURE B-20**  
**FISH CREEK MTNS. WIND ROSE (GUSTS ONLY) – SEPTEMBER 14**

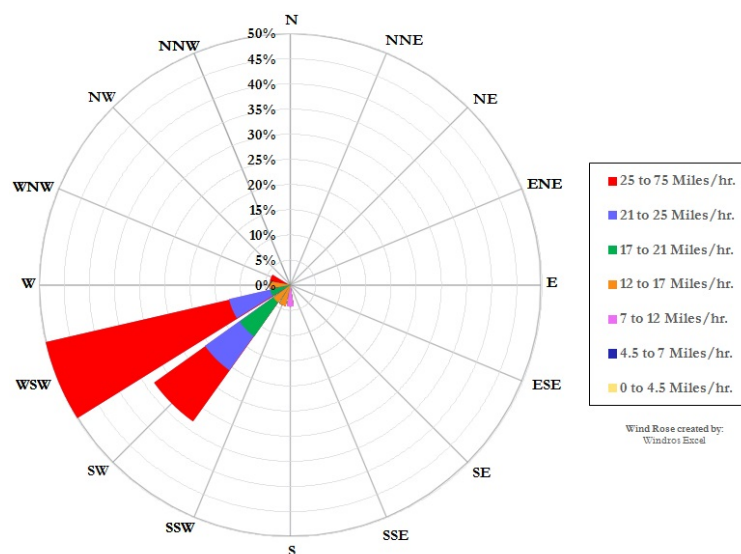


**Figs B-19 & B-20:** The Fish Creek Mountains did not have winds above 25 mph, but strong gusts played an important role in transporting dust downstream. Data from the University of Utah's MesoWest (Station ID: FHCC1; elev. 781 ft)

**FIGURE B-21**  
**SUNRISE-OCOTILLO**  
**WIND SPEED (AVERAGES) & GUSTS AND DIRECTION**

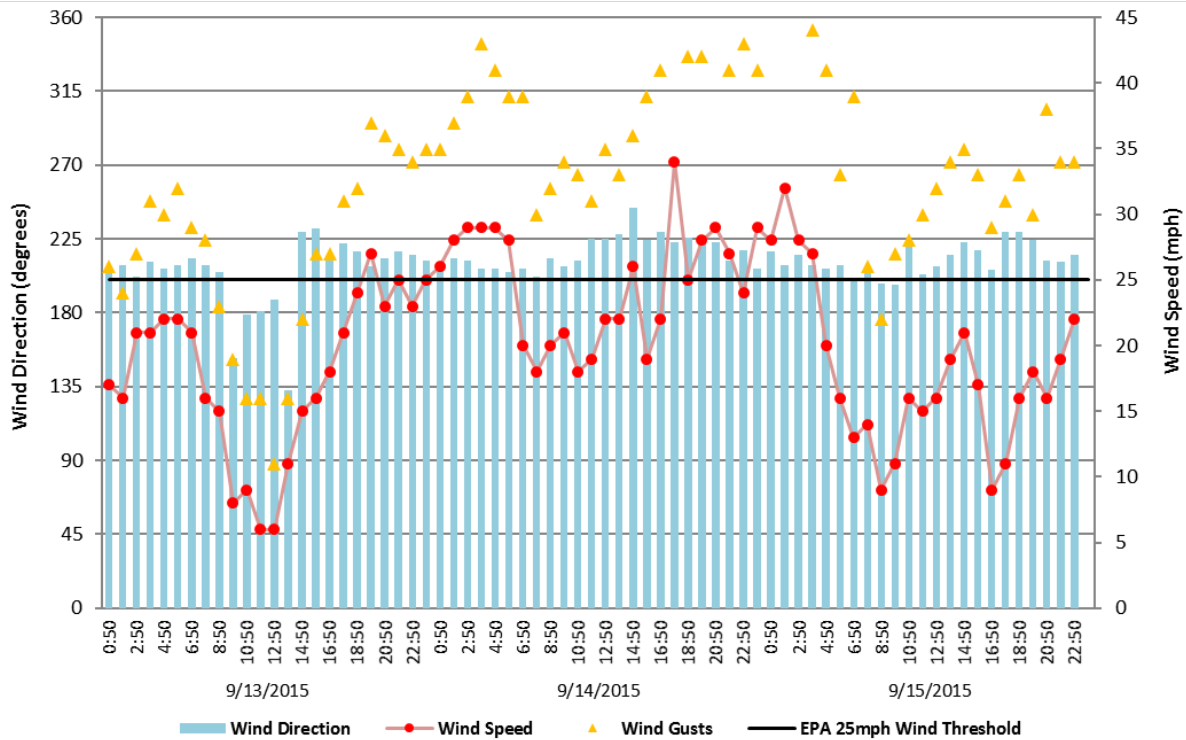


**FIGURE B-22**  
**SUNRISE-OCOTILLO WIND ROSE (GUSTS ONLY) – SEPTEMBER 14**

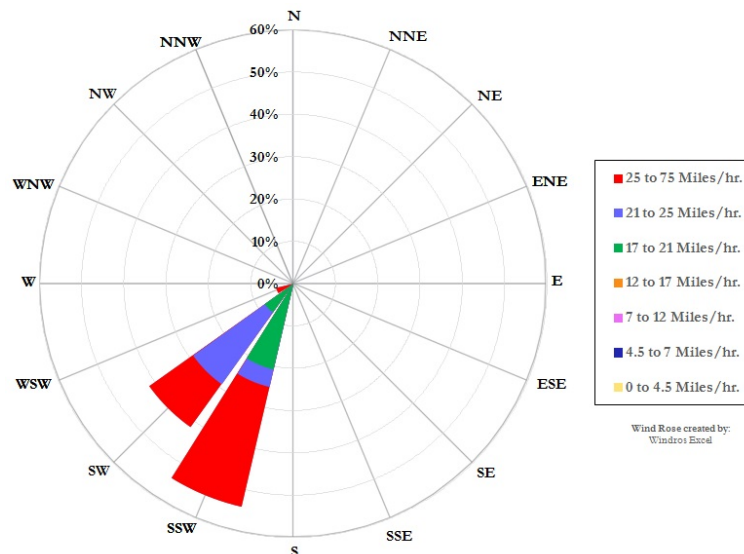


**Figs B-22 & B-23:** Sunrise-Ocotillo had winds right at 25 mph, but strong gusts played an important role in transporting dust downstream. Data from the University of Utah's MesoWest (Station ID: IMPSD; elev. 695 ft)

**FIGURE B-124**  
**MOUNTAIN SPRINGS GRADE**  
**WIND SPEED (AVERAGES) & GUSTS AND DIRECTION**



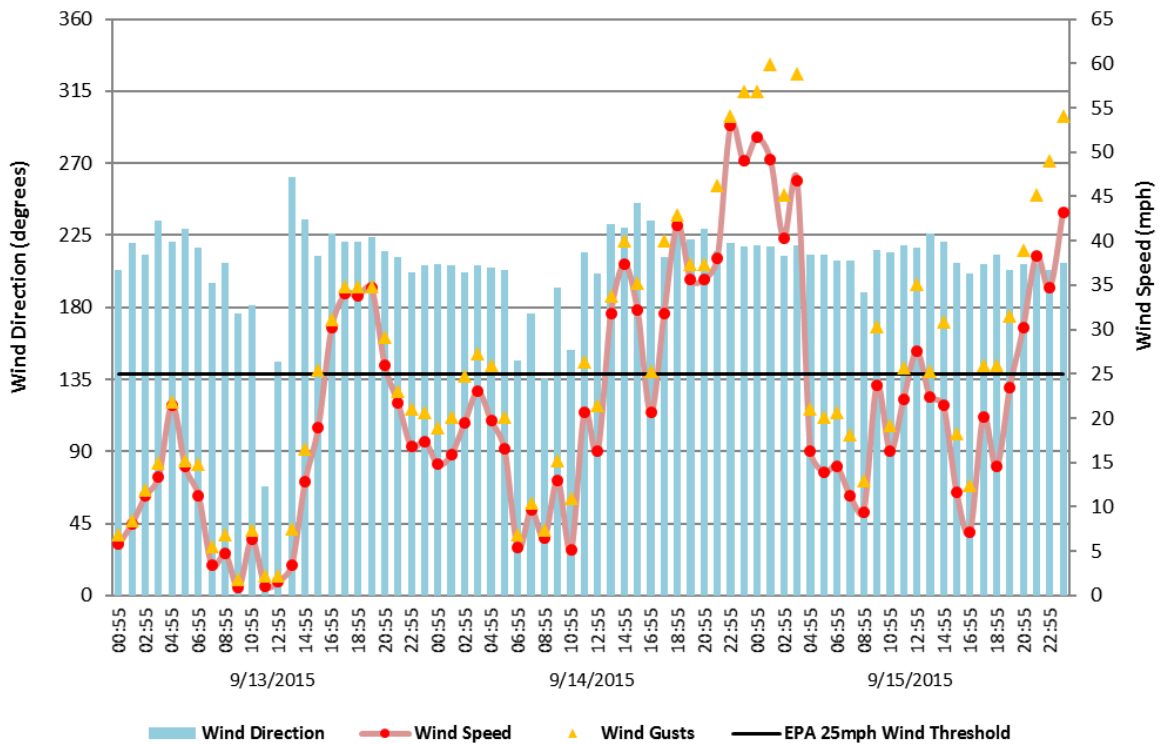
**FIGURE B-25**  
**MOUNTAIN SPRINGS GRADE WIND ROSE – SEPTEMBER 14**



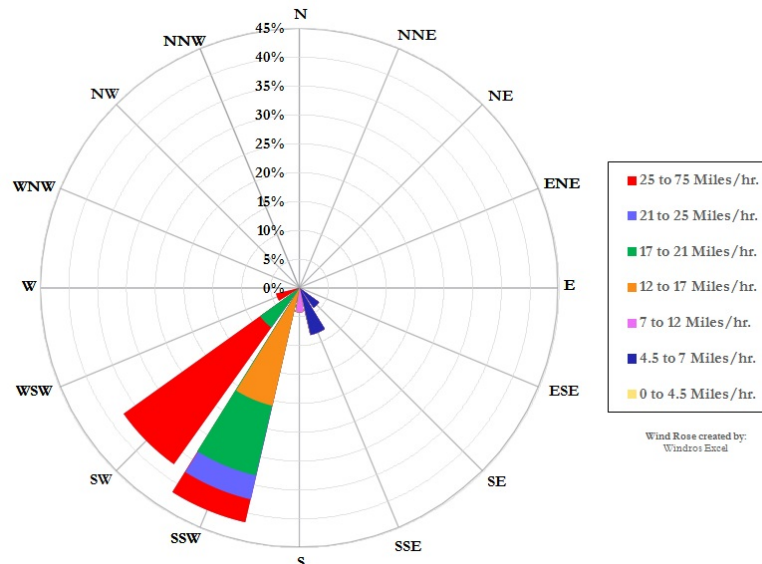
**Figs B-24 & B-25:** Mountain Springs Grade had multiple hours of winds above 25 mph, along with strong gusts that played an important role in transporting dust downstream. Data from the University of Utah's MesoWest (Station ID: TNSC1; elev. 2,044 ft)



**FIGURE B-26**  
**MT. LAGUNA (former USAF site)**  
**WIND SPEED (AVERAGES) & GUSTS AND DIRECTION**



**FIGURE B-27**  
**MOUNT LAGUNA WIND ROSE – SEPTEMBER 14**



**Figs B-26 & B-27:** Mount Laguna had multiple hours of winds above 25 mph, along with strong gusts that played an important role in transporting dust downstream. Data from the University of Utah's MesoWest (Station ID: HP001; elev. 6,300 ft)

**FIGURE B-28  
IMPERIAL AIRPORT QCLCD**

U.S. Department of Commerce  
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL  
CLIMATOLOGICAL DATA  
(final)  
HOURLY OBSERVATIONS TABLE  
IMPERIAL COUNTY AIRPORT (03144)  
IMPERIAL, CA  
(09/2015)**

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801

Elevation: -58 ft. below sea level  
Latitude: 32.834  
Longitude: -115.578  
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
14	0053	12	CLR	10.00		86	30.0	68	20.2	58	14.4	39	6	190		29.72			29.66	AA		29.66
14	0153	12	CLR	10.00		85	29.4	67	19.4	56	13.3	37	5	130		29.71			29.66	AA		29.65
14	0253	12	CLR	10.00		84	28.9	73	22.9	68	20.0	59	3	090		29.71			29.65	AA		29.65
14	0353	12	CLR	10.00		80	26.7	69	20.6	63	17.2	56	0	000		29.72			29.66	AA		29.66
14	0453	12	CLR	10.00		79	26.1	69	20.4	63	17.2	58	0	000		29.73			29.67	AA		29.67
14	0553	12	CLR	10.00		80	26.7	72	22.2	68	20.0	67	7	300		29.76			29.70	AA		29.70
14	0653	12	CLR	10.00		85	29.4	76	24.4	72	22.2	65	5	290		29.77			29.71	AA		29.71
14	0753	12	CLR	10.00		89	31.7	76	24.6	71	21.7	55	6	100		29.77			29.71	AA		29.71
14	0853	12	CLR	10.00		91	32.8	78	25.3	72	22.2	54	0	000		29.78			29.72	AA		29.72
14	0953	12	CLR	10.00		93	33.9	79	25.9	73	22.8	52	5	VR		29.78			29.72	AA		29.72
14	1053	12	CLR	10.00		96	35.6	79	26.0	72	22.2	46	7	080		29.76			29.70	AA		29.70
14	1153	12	BKN048 BKN060	10.00		96	35.6	78	25.3	70	21.1	43	0	000		29.74			29.68	AA		29.68
14	1253	12	CLR	10.00		99	37.2	76	24.5	66	18.9	34	9	250		29.71			29.65	AA		29.65
14	1353	12	CLR	10.00		101	38.3	74	23.4	61	16.1	27	17	270	24	29.68			29.62	AA		29.62
14	1453	12	CLR	10.00		100	37.8	72	21.9	56	13.3	23	22	270	29	29.67			29.61	AA		29.61
14	1553	12	FEW100	10.00		97	36.1	71	21.5	56	13.3	25	21	270	31	29.67			29.61	AA		29.61
14	1653	12	SCT090 BKN110	10.00		95	35.0	68	20.2	52	11.1	23	23	250	37	29.67			29.61	AA		29.61
14	1753	12	CLR	10.00		90	32.2	68	20.0	55	12.8	31	18	260		29.69			29.63	AA		29.63
14	1853	12	CLR	10.00		86	30.0	68	20.2	58	14.4	39	18	280	26	29.71			29.65	AA		29.65
14	1953	12	CLR	10.00		85	29.4	67	19.2	55	12.8	36	21	280	25	29.74			29.68	AA		29.68
14	2053	12	CLR	10.00		84	28.9	66	19.0	55	12.8	37	21	260	33	29.75			29.69	AA		29.69
14	2153	12	CLR	10.00		83	28.3	66	19.1	56	13.3	40	18	270	29	29.76			29.70	AA		29.70
14	2253	12	CLR	10.00		82	27.8	67	19.4	58	14.4	44	21	260	26	29.76			29.70	AA		29.70
14	2353	12	CLR	10.00		81	27.2	67	19.3	58	14.4	46	15	260		29.78			29.72	AA		29.72

Dynamically generated Tue Apr 05 18:47:25 EDT 2016 via <http://www.ncdc.noaa.gov/qclcd/QCLCD>

**FIGURE B-29**  
**EL CENTRO NAF QCLCD**

U.S. Department of Commerce  
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL  
CLIMATOLOGICAL DATA**  
**(may be updated)**  
**HOURLY OBSERVATIONS TABLE**  
**NAF (23199)**  
**EL CENTRO, CA**  
**(09/2015)**

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801

Elevation: -42 ft. below sea level  
Latitude: 32.816  
Longitude: -115.683  
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-Hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
14	0056	5	CLR	10.00		84	28.9	67	19.5	57	13.9	40	7	190		29.72			29.72	AA		29.68
14	0156	5	CLR	10.00		80	26.7	67	19.4	59	15.0	49	0	000		29.72			29.72	AA		29.68
14	0256	5	CLR	10.00		80	26.7	67	19.4	59	15.0	49	6	280		29.72			29.72	AA		29.68
14	0356	5	CLR	10.00		80	26.7	67	19.6	60	15.6	51	3	300		29.72			29.72	AA		29.68
14	0456	5	FEW150 FEW250	10.00		80	26.7	70	20.9	64	17.8	58	0	000		29.74			29.74	AA		29.70
14	0556	5	FEW150 FEW250	10.00		81	27.2	69	20.4	62	16.7	53	5	310		29.76			29.76	AA		29.72
14	0656	5	FEW150	10.00		87	30.6	70	21.2	61	16.1	42	6	280		29.77			29.78	AA		29.73
14	0756	5	FEW150	10.00		89	31.7	76	24.3	70	21.1	54	3	040		29.77			29.78	AA		29.73
14	0856	5	FEW060 FEW150	10.00		91	32.8	77	24.9	71	21.7	52	5	030		29.78			29.78	AA		29.74
14	0956	5	FEW060 FEW150	10.00		93	33.9	78	25.2	71	21.7	49	0	000		29.78			29.78	AA		29.74
14	1056	5	FEW045	10.00		95	35.0	77	24.9	69	20.6	43	8	280		29.76			29.76	AA		29.72
14	1156	5	FEW045	10.00		98	36.7	76	24.4	66	18.9	35	6	250		29.74			29.74	AA		29.70
14	1256	5	FEW045	10.00		99	37.2	73	22.6	59	15.0	27	7	VR		29.71			29.72	AA		29.67
14	1356	5	FEW060	10.00		101	38.3	71	21.9	55	12.8	22	20	280	29	29.69			29.69	AA		29.65
14	1456	5	SCT060	10.00		99	37.2	70	21.1	53	11.7	21	30	260	36	29.67			29.67	AA		29.63
14	1556	5	SCT060 SCT250	10.00		97	36.1	70	21.2	55	12.8	24	30	260	40	29.67			29.67	AA		29.63
14	1656	5	SCT070 SCT100	10.00		94	34.4	69	20.5	54	12.2	26	28	250	37	29.68			29.68	AA		29.64
14	1756	5	FEW080 SCT100	10.00		89	31.7	68	19.9	55	12.8	32	21	260		29.69			29.70	AA		29.65
14	1856	5	FEW080 FEW110	10.00		86	30.0	67	19.6	56	13.3	36	30	260		29.71			29.72	AA		29.67
14	1956	5	FEW110	10.00		84	28.9	66	18.7	54	12.2	36	22	290	28	29.75			29.75	AA		29.71
14	2056	5	FEW120	10.00		84	28.9	65	18.5	53	11.7	34	22	260		29.76			29.76	AA		29.72
14	2156	5	CLR	10.00		82	27.8	66	18.9	56	13.3	41	26	260	39	29.77			29.78	AA		29.73
14	2256	5	CLR	10.00		82	27.8	67	19.2	57	13.9	43	25	250	30	29.78			29.78	AA		29.74
14	2356	5	CLR	10.00		82	27.8	68	19.7	59	15.0	46	24	250	31	29.78			29.78	AA		29.74

Dynamically generated Tue Apr 05 18:45:46 EDT 2016 via <http://www.ncdc.noaa.gov/qclcd/QCLCD>